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This is an index of all the reading matter in the ARCHIVES, except the Medical News Department which has been discontinued.

The letters used to explain in which departments the matter indexed appears are as follows: "ab," abstracts, "E," editorial and the asterisk (*) indicates an original article in the ARCHIVES.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Reviews," "Deaths," and "Survey of Selected Literature," are indexed under these titles at the end of the letters "B," "D" and "S." The name of the author, in brackets, follows the subject entry. If there are more than two authors, only the name of the first author is given.

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If a man does not keep pace with his companions,

perhaps it is because he hears a different drummer.

—THOREAU

ABSTRACTS

The following abstracted articles have been published in the January-December, 1960 issues of the journal.

JANUARY

Neurosurgical Relief of Intention Tremor Due to Cerebellar Disease and Multiple Sclerosis. I. S. Cooper. *(pp.1-4)*

● Intention tremor may be relieved by chemothalamectomy. The lesion produced is in the medial portion of the ventrolateral nucleus of the thalamus. This lesion apparently interrupts nerve fibers entering the thalamus from the globus pallidus, red nucleus, cerebellum, and probably also the vestibular nucleus. Relief of intention tremor has been maintained for as long as one year. Moreover, intention tremors of such varying etiology as familial cerebellar degeneration, severe intracranial trauma, toxic hepatocerebral disease, and multiple sclerosis have been alleviated by this procedure.

Requests for reprints and/or information should be directed to: Irving S. Cooper, M.D., 50 Sutton Place, New York 22, N. Y.

Survey of Recent Research Activities in the Rheumatic Diseases. R. L. Black. *(pp. 5-9; 2 figures)*

● Research in the rheumatic diseases has shown a remarkable growth curve over the past decade. This has been in part due to the stimulation furnished by the discovery of the remarkable effects of corticosteroids in these diseases, and in part due to the increasingly generous financial and other support furnished to investigators in this area of research by private and federal sources. For example, NIAMD support for research in this field increased from 48 projects in 1953 to 87 in 1956. Having equal importance with the increase in volume, the nature of research endeavor has shown a more sophisticated trend. Whereas in 1953 only 20 per cent of the activity was in the biochemical area; in 1956, 40 per cent of the projects were fundamentally of biochemical nature. Current research activity can be easily appreciated by a searching glance at the programs of the two American Rheumatism Association meetings held within the past year. In all, 70 papers were presented, 22 of which were devoted to a study of the fundamental properties of the protein substances present in some sera responsible for the production of positive lupus erythematosus, and rheumatoid factor tests. Another 30 per cent of these papers were devoted to the description of new and interesting facets of the clinical and pathologic features of the rheumatic diseases. Other papers were devoted to therapeutic, physiologic, and metabolic studies. Features of the more important of these research developments will be discussed in the survey.

Requests for reprints and/or information should be directed to: Roger L. Black, M.D., National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda 14, Md.

Physical Medicine and Rehabilitation in Law-Science: Its Value in Personal Injury Problems and Medicolegal Trial Technics. M. K. Newman. *(pp. 10-15)*

● The field of physical medicine and rehabilitation, by virtue of its extensive employment of objective technics, in the disturbances of the neuromusculoskeletal system, and associated diseases which require objective functional evaluation, offers the field of Law-Science the greatest opportunity for clarifying its many problems. The experience of the physiatrist in the use of the diagnostic and therapeutic measures defined in the objective tests such as the activities of daily living, range of motion testing, mechanical and myometer muscle testing, and with the extensive use of electronic recording devices and diagnostic medicine, permits the formulation of accurate and demonstrable information for legal judgment. By means of such methods as electromyography, chronaximetry, oximetry, circulation time testing and the like, it is possible to clarify the criteria proof necessary to govern the just appraisal and disposition of the various personal injury claims. Appropriate examples are presented in developing the criteria of the objective disability, capability, and the methods of evaluation to demonstrate the actual application in trial technics.

Requests for reprints and/or information should be directed to: Max K. Newman, M.D., Detroit Institute of Physical Medicine and Rehabilitation, 16861 Wyoming Ave., Detroit 21, Michigan.

Effect of Marsilid on Depression and Apathy in Chronic Physical Illness. J. R. Hodge, and F. C. Shontz. *(pp. 16-18; 2 tables)*

● A double blind study of the effects of Marsilid (iproniazid) and a placebo was made upon 13 patients who had chronic physical illnesses accompanied by symptoms of depression, apathy, withdrawal, and lack of motivation for rehabilitation procedures. All patients received psychological tests and psychiatric evaluations during the six-week study period. No significant changes, qualitatively or quantitatively were found in any of the three groups; and it is concluded that Marsilid alone, in the dosage employed (100 mg. per day), and in the absence of all psychotherapeutic technics, was of no significant value in the management of these conditions.

Requests for reprints and/or information should be directed to: James R. Hodge, M.D., 326 S. Main St., Akron 8, Ohio.

Perception in Hemiplegia: I. Judgment of Vertical and Horizontal by Hemiplegic Patients. H. G. Birch; F. Proctor; M. Bortner, and M. Lowenthal. *(pp. 19-27; 4 figures and 9 tables)*

● The present investigation of judgment of the visual vertical and horizontal is the first in a series of reports concerned with perceptual functioning in hemiplegic patients. The results indicate that systematic alterations in the visual perception of the vertical and horizontal occur as important sequelae of the neurologic damage that results in hemiplegia. These results are discussed in terms of their implications for rehabilitation practice and their significance for neurologic and perceptual theory.

Requests for reprints and/or information should be directed to: Morton Bortner, Ph.D., New York Medical College, Department of Physical Medicine and Rehabilitation, 1 E. 105th St., New York 29, N. Y.

FEBRUARY

Surgical Considerations of Hand Rehabilitation. J. L. Bell. *(pp. 45-53)*

● The anatomy and kinesiology of the hand will be reviewed from the standpoint of diagnosis and management of acute injuries and reconstructive surgery of the hand. In the main, there are three types of injuries to the hand; sharp lacerations involving tendons and nerves; crushing injuries which involve not only the covering tissues, but may involve bones, joints, tendons and nerves; and lastly, thermal burns of the hand. Although skilled primary care may obviate the necessity for additional reparative procedures in many types of trauma to the hand, crushing injuries are frequent exceptions. In the latter an optimum restoration of function is accomplished only after one or more secondary operations, even though the initial wounds may have healed without infection, tissue necrosis, or excessive scarring. If these disastrous conditions have intervened, problems of reconstruction are compounded and the ultimate result is far from satisfactory. It is well recognized that adequate, early initial surgery is the foremost deterrent to these complications following mutilating trauma of the hand. Crushing injuries vary in extent, depth and location. Frequently more than one type of tissue is involved. However, covering tissues of the hand are most commonly damaged in open crush injuries. Deeper structures which should be considered are tendons, nerves, intrinsic muscles, bones

and joints. To determine its efficiency, the injured hand should be re-evaluated when all wounds are soundly healed. A knowledge of anatomy and basic functions of the hand is essential to assess properly all situations encountered following maximum healing of tissues. Although secondary procedures may have been anticipated from the time of initial surgery, some may not be necessary following a reasonable trial of time and use. Loss of sensation may be a greater disability than loss of active motion. Stability with intact sensation is often more useful than active movement in a digit which lacks feeling. Mobility of stiffened interphalangeal joints cannot be corrected satisfactorily by surgical methods; however, motion at metacarpophalangeal joints often is improved following lateral capsulotomies. Loss of function after irreparable destruction or long standing paralysis of intrinsic muscles may be partially overcome, if joint mobility has been preserved along with sufficient motor components which can be utilized for substitution. Following tendon injuries, an increase in active extension or flexion of digits is possible, provided that intervening joints and surrounding tissues permit either secondary repair or tendon grafting as necessary. In many instances the problems of reconstruction to provide even minimal restoration of function may be complex.

Requests for reprints and/or information should be directed to: John L. Bell, M.D., Department of Surgery, Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11, Ill.

Evaluation and Treatment of Lower Motor Unit Lesions Involving the Shoulder, Arm, Forearm, and Hand. R. L. Bennett. *(pp. 54-61)*

● The physician who accepts the responsibility of caring for a patient with muscle weakness following a lower motor neuron lesion must understand the reaction of the motor unit to disease and trauma, and must have the ability to determine the site and extent of the lesion so that he can precisely prescribe and personally treat, or supervise the treatment of, his patients. Diagnosis must be based on an accurate history and specific objective findings. These findings are obtained through observation of bodily movement, specific muscle strength testing, and electronic analysis of motor unit function. The program of care is based on the apparent contradiction that while full recovery is expected, something less than full recovery is anticipated. With this basis in mind, the technics and devices used to promote recovery must in no way limit the possibilities of functional devices and orthopedic surgery if full recovery does not take place. In general, the treatment program is made up of four components: (1) proper support of weakened bodily segments; (2) intelligent mobilization; (3) specific muscle reeducation, and (4) specialized functional analysis and training with or without specialized orthetic devices and modified environment consistent with the site and degree of residual weakness.

Requests for reprints and/or information should be directed to: Robert L. Bennett, M.D., Executive Director, Georgia Warm Springs Foundation, Warm Springs, Ga.

Psychiatric Considerations of Hand Disability. S. H. Fisher. *(pp. 62-70)*

● Consideration of the psychiatric aspects of hand disability must be directed toward an elaboration of the meaning of the hand and its disabilities to the individual, and the various factors involved in determining this meaning. In its general aspects, the biological evolution of the hand and its effect on the function of the individual, the social and anthropological significance of the hand is considered. In its more specific aspects, hand disabilities are discussed from the viewpoint of the special problems which are raised by amputation, prostheses, phantom limb, paralysis, deformity, handedness, and congenital versus acquired disability. Finally, the personality of the individual with hand disability is considered, indicating how this factor contributes to the meaning of the disability and the various modes of adaptation to it.

Requests for reprints and/or information should be directed to: Saul H. Fisher, M.D., Assistant Professor of Clinical Psychiatry, New York University College of Medicine, New York, N. Y.

Perception in Hemiplegia: II. Judgment of the Median Plane. H. G. Birch; F. Proctor; M. Bortner, and M. Lowenthal. *(pp. 71-75; 1 figure and 5 tables)*

● A group of hemiplegic patients and control patients were examined in a task which involved the perception of the median plane under **dark** and **light** conditions. Under dark conditions, the total hemiplegic group showed significantly larger median plane alterations than did the control group. Both the right hemiplegic and left hemiplegic groups perceived the median plane to be significantly displaced to the affected side of the body. Under light conditions, median plane alterations were markedly reduced, but the hemiplegic group still showed significantly greater errors than did the control group. The results are discussed in connection with the alteration in the mechanisms of median plane perception in hemiplegia.

Requests for reprints and/or information should be directed to: Morton Bortner, Ph.D., New York Medical College, Department of Physical Medicine and Rehabilitation, 1 E. 105th St., New York 29, N. Y.

MARCH

The Ninth John Stanley Coulter Memorial Lecture: Tomorrow's Physiatrist. R. L. Bennett. *(pp. 89-94)*

● Because of the very nature of the diseases he cares for, tomorrow's physiatrist will be thoroughly oriented in the concept of total rehabilitation. However, he will not think of himself as specializing in "total rehabilitation," but in the over-all care of a well-defined group of diseases that primarily affect the neuromuscular and musculoskeletal systems. For adequate care of many of his patients with these diseases, he will need the advice and skill of other medical and surgical specialists. For his patients who need more than definitive medical and surgical care, he will utilize the skills of many paramedical disciplines. He will have the ability to interpret, correlate, and utilize test data from these disciplines much as any physician or surgeon, regardless of specialty, now utilizes data received from the x-ray department or the clinical laboratory. In essence, the physiatrist of tomorrow will be a physician with specialized interest and training capable of anticipating, recognizing, and handling the problems inherent in the care of those diseases with which the field of physical medicine and rehabilitation is most concerned.

Requests for reprints and/or information should be directed to: Robert L. Bennett, M.D., Executive Director, Georgia Warm Springs Foundation, Warm Springs, Ga.

Psychological Aspects of the Development of Speech and Language. E. Henrikson. *(pp. 95-102)*

● The development of human speech and language depends on a complex interaction between the individual and his environment. Basic to this development is an adequately functioning organism, variations in which can lead to delayed or deviant development. Psychological factors play an important part in determining how influential such variations will be. The general ability level of a person in such areas as intelligence affects his speech and language. Motivation is important for without it, inherent speech and language potentials may not be realized. The general adjustment pattern of the child is very influential. Speech and language represent significant facets of a child's self realization and of his relationship pattern to his social environment and are related to his total development in these areas. The results of psychological trauma on speech and language development emphasize the importance of psychological factors. Psychological influence is evident in all phases of language development ranging from effects on specific sound production through effects on the total language pattern.

Requests for reprints and/or information should be directed to: Ernest Henrikson, Ph.D., 205 Shevlin Hall, University of Minnesota, Minneapolis 14, Minn.

Clinical Problems in Speech and Language. N. E. Wood. *(pp. 103-110)*

● Speech pathologists are concerned with the rehabilitation of a wide assortment of problems that impede or interrupt communication. Research has shown that speech and language disorders occur randomly throughout the population without regard for age, sex, race, or socioeconomic level. Since speech is a learned function, speech disorders, whether congenital or acquired, are

either symptomatic of another problem or causally connected with a more basic disorder. For this reason, the speech pathologist most often functions as a part of a rehabilitation team. Speech disorders cannot be considered peripheral problems. Although disorders of voice, articulation, stuttering, hearing and aphasia, or associated problems of cerebral palsy or cleft palate are often brought to the attention of the speech pathologist, diagnostic information and suggestions for treatment must be available from all other personnel who have examined and/or treated the patient. The role of the speech pathologist must be removed from demands for miracles, for these demands can only result in quackery. Speech pathology must remain a scientific investigation with practical planning, imaginative procedures and hard work. Because of this wide diversification of speech and language problems, the aspect of language disorders will be emphasized in this report. In general, this discussion will be concerned with the rehabilitation of language disorders as they occur in both children and adults. More specifically, the subject matter will be related to aphasia, alexia and agraphia as caused by cerebral vascular accidents, brain tumors, or head injuries and congenital aphasia caused by anoxia, febrile episodes or birth injury. Clinical definitions of these problems, diagnostic needs and therapeutic suggestions will be presented.

Requests for reprints and/or information should be directed to: Nancy E. Wood, Ph.D., 11206 Euclid Ave., Cleveland 6, Ohio.

Self-Help Prosthetic Device to Facilitate Locking and Unlocking of Long-Leg Braces. F. Becker. *(pp. 111-112; 5 figures)*

● The "Boomerang" is a device that might make the difference between a patient being able or not being able to extend his long-leg braces to the lock position without aid. This device is offered on the chief merit of overcoming these mechanical disadvantages aside from the fact that it facilitates the use of weakened upper extremities and reduces overall energy and man hour costs. The "Boomerang" is extremely rugged and repairs are seldom necessary even after years of continuous use.

Requests for reprints and/or information should be directed to: Folke Becker, M.D., VA Center, Dublin, Ga.

New Type Ergograph. D. K. Mathews; K. L. Pell, and N. H. Shoup. *(pp. 113-114; 2 figures)*

● An ergograph built by the Division of Industrial Research through cooperation with the Fitness Laboratory in the School of Physical Education at the State College of Washington is described and illustrated.

Requests for reprints and/or information should be directed to: Donald K. Mathews, D.P.E., 337 W. 17th Ave., Columbus 10, Ohio.

APRIL

Height and Weight of Children with Cerebral Palsy and Acquired Brain Damage. H. M. Sterling. *(pp. 131-135; 4 figures and 6 tables)*

● Height and weight records of 100 patients with brain damage occurring prenatally, paranatally or in early childhood have been compared with those of the normal population at the same age, where possible. Data regarding the height and weight in the group with prenatal and paranatal brain damage (cerebral palsy) is less than would be expected. A small group of children acquiring brain damage later did not show as great differences from the predicted height and weight for normal individuals of the same age.

Requests for reprints and/or information should be directed to: Harold M. Sterling, M.D., Joseph P. Kennedy, Jr. Memorial Hospital, 30 Warren Street, Brighton 35, Mass.

Medical and Vocational Evaluation of Young Adult Cerebral Palsied: Experience and Followup, 157 Cases. S-J. Yue, and M. G. Moed. *(pp. 136-142; 11 tables)*

● Since 1955, 157 young adult cerebral palsied patients have gone through a work classification and evaluation project. Through medical examination, activities of daily living tests in physical and occupational therapy, psychometric studies, speech and hearing evaluations, and psychiatric examinations were carried out as they entered. These patients were then subjected to vocational evaluation in a special cerebral palsy workshop for a period of seven weeks. Predictions were made as to employability: that of the 157 patients, 52 per cent would be employable; 14 per cent had borderline employability; and 34 per cent would not be able to enter the competitive labor market. In follow-up study of 126 cases, it was found that 56 per cent of the patients in the predicted employable group had over 25 per cent of employment during the follow-up period and that 94 per cent of the patients predicted to be unemployable were unemployed. Of the individual medical test factors measured, only the physical therapy activities of daily living was significantly related to the vocational accomplishment, but the composite of both the physical factors and mental factors was more predictive of success than any one factor. There was some evidence that a minimal predictive score may furnish a basis for realistic prediction of job chances, but many immeasurable individual and chance factors enter into the achievement of vocational success.

Requests for reprints and/or information should be directed to: Shyh-Jong Yue, M.D., 630 W. 168th St., New York 32, N. Y.

Chronic Physical Illness as Threat. F. C. Shontz; S. L. Fink, and C. E. Hallenbeck. *(pp. 143-148; 1 table)*

● Ever since the concept of man as a psychobiological unit has been accepted, medical workers have found it necessary to seek explanations from psychiatrists, psychologists, and social workers for the behaviors of their patients. All too frequently, physical illness often serves the purpose of gaining satisfaction for security needs and other psychosocial wants without any special stigma or shame being attached to the sick person's behavior or to his feelings about himself. This study points up empirical evidence of the fact that personal values of the physically disabled are not always primarily concerned with getting well, even though the disabled do tend to be somewhat more concerned with physical functioning than do healthy persons.

Requests for reprints and/or information should be directed to: Franklin C. Shontz, Ph.D., Highland View, Cuyahoga County Hospital, 3901 Ireland Drive, Cleveland 22, Ohio.

A Modified Coaxial Electrode for Electromyography. R. O. Becker, and J. T. Chamberlin. *(pp. 149-151; 3 figures)*

● A modification of the standard coaxial electrode is presented along with investigation of its electrical parameters. This type of probe has been in use for two years and has been found to offer advantages such as reproducibility of results; complete coaxial shielding throughout; durability and handling ease; cold sterilization is easily accomplished and efficient, as well as ease of manufacture. The design produces an exceptionally convenient and durable electrode and eliminates the variables produced by frequent replacement of the standard type.

Requests for reprints and/or information should be directed to: Robert O. Becker, M.D., Chief, Orthopedic Service, VA Hospital, Irving Avenue and University Place, Syracuse 10, N. Y.

Active Immobilization for Arthritic Wrists and Knees. M. Kelly. *(pp. 152-157; 3 figures)*

● Rheumatoid arthritis is characterized by acute attacks in individual joints. Most of the disability comes from acute attacks on knees and wrists, which are held flexed until they cannot be straightened. Disabilities of fingers are usually secondary to arthritis of the wrist; the most common cause of inability to walk is a flexion deformity of the knees. Flexion deformities can be prevented by immobilization of acutely inflamed knees and wrists in extension; the hand should be used and the leg should be walked on. Flexion deformities of knees and wrists should be corrected under general anesthesia; immobilization should then be performed. If the joint has any cartilage, flexion returns after these procedures. If there is no cartilage, the patient is grateful for a painless ankylosis in good position.

Requests for reprints and/or information should be directed to: Michael Kelly, M.D., Institute of Rheumatology, 410 Albert St., East Melbourne, Australia.

MAY

An Electromyographic Study of the Extrinsic-Intrinsic Kinesiology of the Hand: Preliminary Report. C. Long; M. E. Brown, and G. Weiss. *(pp. 175-181; 9 figures)*

● A combined electromyographic and cinematographic study of the intrinsic-extrinsic kinesiology of the hand has been undertaken at Highland View Hospital, Cleveland. Motion pictures of the hand were taken from the lateral view with the wrist unsupported in recurrent opening and closing motions. Simultaneous eight-channel electromyography was performed on the intrinsic and extrinsic musculature of the hand using skin electrodes and 37 micron copper or stainless steel wire electrodes. The recordings are synchronized and matched. Data is reduced to produce joint motion curves, to which the electromyographic output is correlated. Data is further reduced through the use of mathematical methods and an IBM 650 computer to give information concerning velocity and acceleration of the various segments of the hand during the test motion. The phasic relationships of intrinsic and extrinsic musculature are studied, with particular emphasis on the function of the intrinsics in opening and closing the hand. Qualitative findings are primary, and quantitative findings secondary only.

Requests for reprints and/or information should be directed to: Charles Long, II, M.D., Highland View Hospital, 3901 Ireland Drive, Cleveland 22, Ohio.

Muscle Relaxants in Cerebral Palsy; A Comparative Study. I: Meprobamate. H. M. Sterling. *(pp. 182-184; 3 tables)*

● A method of objective observation for the influence of drugs on the motor behavior of children with cerebral palsy is available in spite of the differences shown in maturity, skill, motor handicap and between successive periods of time for each child as well as the more obvious differences between children. Meprobamate showed no effect in specific doses for a prescribed period of time when compared with pre- and post-medication performance of children with spasticity due to brain damage. Side reactions were no more frequent during use of the drug than during use of the placebo.

Requests for reprints and/or information should be directed to: Harold M. Sterling, M.D., Joseph P. Kennedy, Jr. Memorial Hospital, 30 Warren St., Brighton 35, Mass.

Motor Nerve Conduction Velocity Studies in Poliomyelitis. E. W. Johnson; J. D. Guyton, and K. J. Olsen. *(pp. 185-190; 5 figures)*

● During the late summer and fall of 1958, 100 patients were admitted to Children's Hospital (Columbus, Ohio) with the clinical diagnosis of acute paralytic poliomyelitis. At various stages in their illness, conduction velocity studies were performed on all the patients. The findings are presented and the diagnostic value of motor nerve conduction velocity determination in the differential diagnosis of polio-like diseases is discussed.

Requests for reprints and/or information should be directed to: Ernest W. Johnson, M.D., 2470 Cranford Road, Columbus 21, Ohio.

Kinesiology of the Temporomandibular Joint. S. I. Silverman. *(pp. 191-194)*

● A study of the kinesiology of the temporomandibular joint is discussed in relation to the functions of speech, respiration, mastication, deglutition, head posture and the special senses. It includes cineradiographic observations of the temporomandibular joint and the pharyngeal musculature; electromyographic records of the muscles associated with joint movement; three dimensional studies of the functional and extreme ranges of movement of the joint; the neurophysiologic mechanisms and the psychologic components of the joint function. The study discusses the therapeutic implications in the field of physical medicine and rehabilitation in relation to nutrition, speech re-training, body posture and the psychological well being of the patients. It also discusses the similarity between the common clinical problems of temporomandibular joint pain syndrome and low back pain syndrome.

Requests for reprints and/or information should be directed to: Sidney I. Silverman, D.D.S., 80 Park Avenue, New York 16, N. Y.

Development of the Prevocational Unit: Stanford Rehabilitation Service. M. Acker, and D. A. Thompson. *(pp. 195-198)*

● The prevocational unit is visualized as one to be used for the evaluation of vocational potential of rehabilitation service patients, people who are presumably vocationally handicapped. This unit is also viewed as being an additional diagnostic tool, rather than as a replacement of other existing modalities. It should be used widely but not indiscriminately. The major medium of the prevocational unit will be work sample testing. The data derived from work sample testing will go beyond the identification or classification of factors pertinent to vocational capacity and will allow for the assessment of durability of these factors in time. It is also used in the teaching of rehabilitation concepts and work measurement technics to students in various specialties through observation and student participation in the testing procedures.

Requests for reprints and/or information should be directed to: Martin Acker, Vocational Counselor, Rehabilitation Service, Stanford University School of Medicine, Department of Preventive Medicine, 2330 Clay St., San Francisco 15, Calif.

JUNE

Pulmonary Function Tests in Rehabilitation. A. W. Brody. *(pp. 215-219; 1 table)*

● Uses of pulmonary function tests are described with relation to the physiologic subdivisions of the processes of respiration. The applications are described in detail for paralyzed patients undergoing rehabilitation. For contrast, typical findings in emphysema are presented.

Requests for reprints and/or information should be directed to: Alfred W. Brody, M.D., Creighton Medical School, 14th and Davenport, Omaha 2, Neb.

Basic Anatomy and Neurophysiology of Speech and Language. G. Kelemen. *(pp. 220-225; 2 figures)*

● Throughout lifelong evolution, anatomical changes remain in very close relation with the quantity and quality of the vocal output. To the changes occurring in the larynx itself, those appearing in the resonating tube have to be added. Growth around the oral, pharyngeal and nasal-paranasal cavities influence the vocal production. They add to its definite and individual character in such a far-reaching manner that single persons are in general easily identified merely by listening to their speech. Vocal individuality is reached by evolution, different for each person, of the profiles of cavities which make up the resonating tube. The larynx is the source of the sound, but it is not to be considered as the organ of speech. It produces the raw material in the form of sound which is modified into voice by resonating chambers located above and below the larynx. To become speech, collaboration of the pharynx, tongue, palate, lips, and nasal cavity is necessary. It may be permissible to throw a glance in the direction of the future of laryngeal development and ask if the human vocal cord and its productions were not overshot in some other species.

Requests for reprints and/or information should be directed to: George Kelemen, M.D., 243 Charles St., Boston 14, Mass.

Muscle Relaxants in Cerebral Palsy; A Comparative Study. II: Chlorophenylmethylthiazanone Sulfone (Trancopal). H. M. Sterling. *(pp. 226-228; 3 tables)*

● Four children having spasticity, athetosis, or both, affecting the control of the upper extremities were given Trancopal in a specified dose for six weeks. Comparison of each child's performance on a specially selected test designed to show possible improvement in rate of manual manipulation during the control period and the period of medication or placebo administration showed no significant change. Comparison of their performance with children who received a placebo failed to reveal any significant difference which could be attributed to a drug effect.

Requests for reprints and/or information should be directed to: Harold M. Sterling, M.D., Joseph P. Kennedy, Jr. Memorial Hospital, 30 Warren St., Brighton 35, Mass.

Pre- and Post-Partum Exercises: Technics, Indications, Benefits. G. C. Twombly. *(pp. 229-234)*

● The prescribing of both pre- and post-partum exercises is increasing. In a significant number of hospitals the responsibility for the administration and supervision of the exercise program is being assumed by the department of physical medicine and rehabilitation. This trend would seem to be a logical one since various forms of exercise comprise an integral and most important part of the activity of any department of physical medicine and rehabilitation. Success of the program depends upon cooperation between obstetrical and physical medicine departments. Exercise technics; methods of instruction; acceptance of program by patient and doctor; physical and psychological benefits; anatomical considerations; limitations and precautions; relation to so-called Natural Childbirth Methods; role of the physical therapist, physiatrist and obstetrician and methods and problems of evaluation are discussed. This report is partially based upon the results of a four-year study (1955-1958) conducted in a private hospital with 5,047 maternity patients.

Requests for reprints and/or information should be directed to: George C. Twombly, Jr., M.D., 1818 Humboldt St., Denver 18, Colo.

JULY

Decrease in Muscle Spasm Produced by Ultrasound, Hot Packs, and Infrared Radiation. F. P. Fountain; J. W. Gersten, and O. Sengir. *(pp. 293-298; 3 figures)*

● Static force balance was used to measure the resistance to passive lateral flexion of the neck in patients with neck muscle spasm, and to passive extension of the leg in patients with poliomyelitis. The effect of hot packs, ultrasound, and infrared on this spasm was noted. All three technics decreased spasm in both groups of patients. Hot packs were, however, significantly most effective in poliomyelitis patients, while ultrasound was significantly least effective in neck spasm.

Requests for reprints and/or information should be directed to: Freeman P. Fountain, M.D., Dept. of Physical Medicine, 4800 Gibson Blvd., S.E., Albuquerque, N. M.

Electromyographic Findings in Adults with Myxedema: Report of 16 Cases. R. R. Ozker; O. P. Schumacher, and P. A. Nelson. *(pp. 299-307; 3 tables)*

● Though electromyography is now widely utilized as a diagnostic procedure, much remains to be learned concerning specific findings in various pathologic conditions. Myxedema, which can be considered a severe degree of hypothyroidism, is rarely seen in clinical practice today. It is a disease involving general metabolic activity and affects multiple systems within the body including the skin, blood, ear, nose and throat, heart and blood vessels, stomach and intestinal tract, genitourinary tract, and also the musculo-skeletal and nervous systems. It is not surprising that abnormalities are frequently seen on electromyographic study. This report summarizes the findings in 16 patients with primary or secondary myxedema.

Requests for reprints and/or information should be directed to: Ridvan R. Ozker, M.D., Cleveland Clinic Foundation, 2020 E. 93rd St., Cleveland 6, Ohio.

Special Problems in Total Medical Care of the Handicapped Patient After Hospital Discharge: Two Case Reports. O. Austlid. *(pp. 308-310; 3 figures)*

● When a disabled patient returns home after completed hospital care he faces many new and difficult problems. The achievement of maximum independence and the potentialities for gainful work are of prime importance. This phase of the patient's total care is often neglected. Two cases of poliomyelitis, which illustrate the multiplicity of problems and how teamwork helped to solve them, are presented. For one patient with quadriplegia an electric hoist was installed in his bathroom. This enabled him to care for his toilet needs and manage alone during the day while his wife was away on her job as a school teacher. For the second patient with paraplegia a new apartment without stairs, a car with hand controls and a suitable job were provided. Similar problems are encountered by any patient suffering from an illness that necessitates changes in living habits or vocation. It is important that physicians in general become more aware of the importance of this phase in the patient's total care.

Requests for reprints and/or information should be directed to: Olav Austlid, M.D., 535 E. 70th St., New York 21, N. Y.

AUGUST

An Approach to Disability Evaluation. L. I. Kaplan; J. S. Tobis, and M. Lowenthal. *(pp. 337-345; 6 figures)*

● Because measuring yardsticks in medicine frequently are based on inadequate clinical data there is a need for accurate methods of measurement. This is true especially in physical medicine and rehabilitation since it is one of the younger specialties. The need particularly is felt in functional evaluation and prognosis; the inadequacies in these areas being pinpointed by a study of 400 patients with functional deficiencies living in nursing homes. Some significant findings include: many patients, thought previously to have functional deficiencies in activities of daily living, were able to perform independently when given an objective activities of daily living test in a place other than the patient's usual residence; lack of agreement existed between competent physicians in their estimations of the patients' suitability for rehabilitation; disagreement was found as to which were the key factors in formulating decisions of patient acceptability, and early results in many patients did not bear out the recorded prognostications of physicians. Important factors, listed by a number of physiatrists, in evaluating the disabled patient were grouped into four major categories on forms and then organized for the major conditions seen in the geriatric nursing home population. The projected technic of measurement was tested by several physiatrists on 60 patients of a hospital's rehabilitation service, problem areas were noted and the forms modified accordingly. Patients in the nursing home study are being tested with these forms. When this larger study is completed it will be analyzed to ascertain the data's validity and in an attempt to develop an improved prognostic method. The use of the forms, therefore, is a proposed first step in the direction of objectifying evaluation in rehabilitation.

Requests for reprints and/or information should be directed to: Lawrence I. Kaplan, M.D., 11 Shrub Hollow Road, Roslyn, L. I., N. Y.

Correlation Between Fibrillation Potentials and Abnormal Chronaxies. W. T. Liberson, and R. Pavasars. *(pp. 346-350; 2 figures and 2 tables)*

● This study was carried out in patients with diffuse peripheral neuropathies, nerve injuries, anterior horn involvement, and myopathies. The total number of muscles investigated was 1,665. There is a high percentage of muscles showing fibrillation potentials when the chronaxie is above 20 milliseconds. The frequency of occurrence of fibrillation potentials markedly decreases for muscles with chronaxies below 20 milliseconds, and only 20-35 per cent of muscles with abnormal chronaxies of 1-3 milliseconds were found to be fibrillating. Almost the same percentage of fibrillating potentials was found for muscles with normal chronaxies in patients presenting lower motor neuron disturbances. These results are discussed.

Requests for reprints and/or information should be directed to: W. T. Liberson, M.D., Chief, PM&R Service, VA Hospital, Hines, Ill.

Heterotopic Ossification, a Problem in Rehabilitation Medicine. H. Lippmann. *(pp. 351-353)*

● Extraskeletal bone formation may complicate a number of disabling diseases and may interfere with rehabilitation procedures. As an example, some problems arising from periarticular ossification in spinal cord diseases are discussed. The occurrence of subcutaneous

ossification in the legs, associated with chronic venous insufficiency, was recently described by the author. Some studies into the pathogenesis of this condition are discussed, insofar as they may help to clarify the understanding of extraskeletal ossification elsewhere.

Requests for reprints and/or information should be directed to: Heinz Lippmann, M.D., 1192 Park Ave., New York 28, N. Y.

SEPTEMBER

A Study to Determine the "Energizing" Effects of Iproniazid (Marsilid) on a Group of Hemiplegics. C. Casella, and J. Sokolow. *(pp. 381-385; 2 tables)*

● A sample of 60 white males with hemiplegia on the right side were selected for inclusion in this study because of poor motivation for rehabilitation while inpatients in a physical medicine and rehabilitation service. The patients were tested on an overt level through physical ability scores and a covert level through Rorschach component scores and divided into two groups equated as to pretreatment scores on these measures. Thirty were included in the experimental group (iproniazid), and the remaining 30 were placed in the control group (placebo). Treatment extended over a six-week period. Upon termination of treatment, physical activity and Rorschach scores again were obtained and compared with the predrug scores. Significant gains were registered by the experimental group as demonstrated by the physical activity scores, while the control group showed no significant change at this overt level. Covert response measures as determined by the Rorschach scores showed no statistically significant change for either the experimental or control group. Possible explanations of this discrepancy between results of overt and covert measures are discussed.

Requests for reprints and/or information should be directed to: Mr. Carmine Casella, M.S., B406, Armstrong Hall, E. Lansing, Mich.

Condensation of Symposium on Mouth-to-Mouth Resuscitation (Expired-Air Inflation). R. E. DeForest. *(pp. 386-393; 3 figures and 5 tables)*

● Research, reported in this symposium, indicates that resuscitation with expired-air breathing is simple and effective. It is especially useful in cases of injury to the body. It is adaptable to infants, children and adults without adjunct equipment. With adjunct equipment it is adaptable to many specialized resuscitation problems, such as in contaminated atmospheres. Expired-air breathing should be performed with inflation volumes about twice the resting tidal volume of the victim at a rate of 12 to 20 per minute. Reserves of pressure and volume can be mustered easily to overcome unusual handicaps. The removal of carbon dioxide and the supply of oxygen can be kept within safe limits. Rescuers can maintain mouth-to-mouth breathing for an hour or more without fatigue even though the victim is physically larger than the rescuer. Obstruction of the airway above the larynx is the most common cause of failure of any method of artificial respiration. In expired-air breathing, this type of obstruction is prevented because the hands are free to keep the head extended at the atlanto-occipital joint and the lower jaw displaced forward. If there is an obvious mechanical obstruction in the airway, the first step is to remove it. If there is no obvious obstruction, mouth-to-mouth breathing is begun at once. It permits breath-by-breath assay of the presence of obstruction, degree of inflation, and degree of relaxation of the victim's chest. Technics, requirements and results are elaborated upon in this condensed study.

Requests for reprints and/or information should be directed to: Ralph E. DeForest, M.D., Council on Medical Physics, American Medical Assn., 535 N. Dearborn St., Chicago 10, Ill.

Effect on Coronary Circulation of Cold Packs to Hemiplegic Shoulders. E. J. Lorenze; G. Carantonis, and A. J. DeRosa. *(pp. 394-399)*

● The evaluation is presented of the possible effect on coronary circulation of the use of cold packs to hemiplegic shoulders. In 20 subjects **without** heart disease no significant electrocardiographic or clinical changes were noted. In 25 subjects **with** known coronary artery disease (including 15 subjects with left hemiplegias) one patient with left hemiplegia showed significant RS-T segment depression with T wave inversion. It is not expected that the relatively minor skin and intramuscular temperature changes will cause significant reflex vasoconstriction of the coronary arteries, or other hemodynamic changes, but it apparently can occur and must be considered a possibility if such therapy is undertaken. Experience with cold packs in hemiplegia, noted in this study, shows that patients reported reduction of pain and better tolerance for stretching temporarily; in some instances pain diminished or disappeared after seven to 12 daily cold applications.

Requests for reprints and/or information should be directed to: Edward J. Lorenze, M.D., Burke Foundation, White Plains, N. Y.

Motivation in Rehabilitation of the Physically Handicapped. M. D. Zane, and M. Lowenthal. *(pp. 400-407)*

● In a previous paper, a conception was developed relating personality traits, performance and stress. In this study the authors elaborate the implications of this conception for the problem of motivation — universally regarded as of prime importance to a patient's success in his rehabilitation program. We are concerned with the question of how the motivation of rehabilitation problem cases is changed during treatment from "poor" to "good." Generally the term "poor motivation" is applied to: 1. Patients who refuse to try the prescribed task; 2. Patients who try but give up quickly; 3. Patients who keep trying but fail to learn. Cases of each category are presented in which motivation was changed from "poor" to "good." Motivation is seen as a complex of forces — some interfering with and some disposing towards effort and learning. Thus, negative and positive motivational factors exist. Negative motivational factors arise in states of increasing stress while positive motivational forces develop with decreasing stress. Clinically, increasing stress develops as the patient is unable or anticipates being unable to achieve what he is trying to do. Decreasing stress ensues as the patient becomes able or anticipates being able to achieve his goal. Rehabilitation therapy strengthens and develops positive motivational factors and weakens and eliminates negative ones by affecting the patient's goals and actions so as to improve his ability to achieve what he is trying to do.

Requests for reprints and/or information should be directed to: Manuel D. Zane, M.D., 15 East 36th St., New York 16, N. Y.

OCTOBER

Pathologic and Clinical Characteristics of Connective Tissue Diseases. H. F. Polley, and C. H. Slocumb. *(pp. 425-433)*

● The connective tissue diseases still present a real challenge to the clinician's diagnostic and therapeutic abilities, but knowledge of the pathologic changes and physiologic aspects of connective tissue and careful attention to clinically recognized variations in the manifestations of connective tissue diseases can be helpful.

Certain previously accepted concepts relating to connective tissue diseases now are being revised as a result of intensive clinical and laboratory studies. With increased efforts to recognize and to differentiate the various connective tissue diseases and treat them more appropriately, it is likely that a more optimistic outlook will be justified.

Requests for reprints and/or information should be directed to: Section of Publications, Mayo Clinic, 200 First St., S.W., Rochester, Minn.

Preliminary Report of Evaluating and Classifying the Vocational Potential of the Cerebral Palsied. O. Machek, and H. A. Collins. *(pp. 434-437; 5 tables)*

● A medically supervised, vocational program of 16 months duration, involving young adults with cerebral palsy, is being analyzed. The patients are classified into four categories. More than 100 patients are being screened. Manual dexterity, basic vocational tools and equipment, and basic academic skills are tested. Practical conclusions are presented.

Requests for reprints and/or information should be directed to: Otakar Machek, M.D., 634 N. Grand Blvd., St. Louis 3, Mo.

Use of Ultrasound in the Treatment of Pressure Sores in Patients with Spinal Cord Injury. B. J. Paul; C. W. Lafratta; A. R. Dawson; E. Baab, and F. Bullock. *(pp. 438-440; 3 figures)*

● Based on clinical observations alone the authors believe that ultrasonic therapy in pressure sores is effective in relieving congestion, cleansing necrotic areas and promoting healing with healthy, nonadherent skin approaching normal thickness. This was especially striking in areas directly over bony prominences such as the sacrum. It is probable that the effect of ultrasound on membrane permeability and the size of the protein molecule play a major role, aside from the heating effect which, in this series, was most likely negligible. From clinical observations it would appear that a scientifically controlled study in this area would be richly rewarding.

Requests for reprints and/or information should be directed to: A. Ray Dawson, M.D., PM&R Service, VA Hospital, Richmond 24, Va.

Diagnostic Challenge of Back Pain. L. Policoff. *(pp. 441-445)*

● When a patient presents himself for examination with a primary complaint of back pain it is commonly assumed that the most likely etiological basis for the difficulty is a musculoskeletal disorder. In actuality even in those instances in which trauma to the musculoskeletal system is a known factor the symptoms are not always related. The human back can mirror referred pain from a diversity of other anatomical sources and etiologic agencies. Some of the more significant causes of back pain encountered in the course of a consulting practice in general hospitals during the past five years is reviewed and analyzed. Their importance to the physiatrist is self-evident, and this survey concludes the physiatrist is the clinician most capable of assessing the true meaning of back pain.

Requests for reprints and/or information should be directed to: Leonard Policoff, M.D., Dept. of PM&R, Albany Medical College and Hospital, Albany, N. Y.

Hospital-Centered Vocational Rehabilitation. R. H. Manheimer; R. Goldman; M. C. Brennan; K. R. C. Greene; P. Sumner, and J. G. Benton. *(pp. 446-451; 11 tables)*

● A vocational rehabilitation unit, operating as an integral part of a department of physical medicine and rehabilitation in a suburban community hospital, is providing comprehensive rehabilitation, including the evaluation and training of patients in performing jobs in the hospital's operating departments. The project will operate for three years. In the first 14 months, 91 handicapped persons were referred. Fifty-one cases were closed, including 29 who went to work.

Requests for reprints and/or information should be directed to: Robert H. Manheimer, M.D., Arthritis & Rheumatism Foundation, 432 Park Ave., South, New York 16, N. Y.

Hydrotherapy Unit. R. E. Worden, and J. P. Zimmerman. *(pp. 452-456; 5 figures)*

● The plans, management, and usage of a custom-built hydrotherapy unit at Children's Hospital, Columbus, Ohio, are discussed. This unit, consisting of three separate compartments and constructed of stainless steel, has proved to have many distinct advantages over conventional hydrotherapy units and the usual floor level therapeutic swimming pool.

Requests for reprints and/or information should be directed to: Ralph E. Worden, M.D., U.C.L.A. Medical Center, 10833 Le Conte Ave., Los Angeles 24, Calif.

NOVEMBER

Use and Abuse of Certain Tools of Physical Medicine. R. L. Bennett. *(pp. 485-496)*

● The author presents an outline of the use and abuse of certain agents commonly used in the field of physical medicine. Each of these tools is essential in the most adequate care of most neuromuscular and musculoskeletal diseases. If misused, each is capable of limiting recovery and causing severe handicap. These tools include mobilization (used synonymously with "stretching") and its abuse, muscle re-education (therapeutic exercise) and its abuse, functional training and its abuse, and orthetic devices and their abuse. In no way decrying their use by emphasizing their abuse, the author indicates there is more truth than poetry in the saying "the brighter the light, the darker the shadow."

Requests for reprints and/or information should be directed to: Robert L. Bennett, M.D., Executive Director, Georgia Warm Springs Foundation, Warm Springs, Ga.

Adrenocortical Steroid Therapy for Rheumatic Diseases. H. F. Polley. *(pp. 497-503)*

● The management of rheumatic diseases has been greatly facilitated by the use of available adrenocortical hormones, their synthetic analogues, or ACTH, but careful attention to varying requirements of the disease and the individual patient is indicated. There is still room for improvement in the treatment of rheumatoid arthritis as well as certain other rheumatic diseases for which steroid therapy may be useful and helpful, and undoubtedly much will be learned regarding the appropriate use of the steroids with further experience. However, for the rheumatic diseases for which steroid therapy may be indicated and helpful, the several adrenocortical steroids currently available can now be useful and reasonably safe adjunctive therapy when used to best advantage within the limits of tolerable doses and as a supplement to the beneficial measures of nonsteroidal therapy.

Requests for reprints and/or information should be directed to: Section of Publications, Mayo Clinic, 200 First St., S.W., Rochester, Minn.

European Spas. W. Bierman; G. Bard; M. E. Knapp; W. D. Paul; E. P. Reese, and S. Winokur. *(pp. 504-513)*

● European spas, frequented by the ailing for many centuries, today are being visited in increasing numbers by the sick and by those who desire to prolong their life span of useful activity. They are being referred by their physicians who consider spa therapy as an integrated part of the overall medical care of their patients. Modern technology is affording objective, scientific explanations for the observed clinical results.

Requests for reprints and/or information should be directed to: William Bierman, M.D., 750 Gonzalez Dr., San Francisco 27, Calif.

Hypnosis, An Adjunct in the Treatment of Neuromuscular Disease. R. F. Baer. *(pp. 514-515)*

Read at the 3rd International Congress of Physical Medicine, Session on Medical Problems Diagnosed or Treated by Physical Medicine, Washington, D. C., August 25, 1960.

● Many diseases seen by the physiatrist can be greatly helped with the use of hypnosis. Certain distressing symptoms of neuromuscular disease can be alleviated substantially. Pain as seen in the whole disease realm can be obtunded or eliminated. Spasticity can be reduced in multiple sclerosis, syringomyelia, traumatic myelitis, etc., where partial function remains. Incontinence is readily controlled in spinal cord disease for long periods. The female paraplegic can learn bladder and bowel control and the male can learn the latter. Incoordination in the mild athetoid can be minimized greatly by conditioned relaxation which can be learned immediately in the trance state. This effect is of long duration. Phantom limb syndrome is easily treated with hypnotic suggestion and the time element in re-education of muscle function and prosthetic use can be reduced significantly. Protein and fluid intake in the debilitated patient can be increased to desired levels, increasing the healing rate of the too often seen decubitus ulcer and decreasing convalescent time. Hypnosis is no panacea but is a valuable adjunct to treatment of neuromuscular disease. It is not applicable to all patients and is a technic which may prove inefficient for some clinicians.

Requests for reprints and/or information should be directed to: Richard F. Baer, M.D., 1213 Elco Dr., Maumee, Ohio.

Adaptation to Marie-Strumpell Arthritis. E. W. Fowlks; J. A. Bridges, and D. Hopkins. *(pp. 516-521; 2 tables)*

● This study covers extensive research during the period 1926-1959 relative to adjustments of Marie-Strumpell arthritis patients discharged from the hospital. Geographic locations, accuracy of diagnosis, military and vocational histories, emotional, marital and work conditions have been considered. Factors responsible for motivation, or lack of motivation, have been worked out in detail from a medical, social and vocational point of view. Reasons for failures in adaptation to chronic diseases are clearly uncovered, and this points out possible reasons for our failure to rehabilitate fully many of our patients even though physical improvement has been very successful.

Requests for reprints and/or information should be directed to: Everill W. Fowlks, M.D., 431 Vista Rd., Oswego 3, Ore.

DECEMBER

Rehabilitation Operation for 10,000 Moroccan Paralysis Victims. G. Gingras, and M. H. L. Desmarais. *(pp. 559-563)*

Read at the 3rd International Congress of Physical Medicine, Session on Neuromuscular Diseases, Washington, D. C., August 24, 1960.

● Paralysis appeared in the Meknes area at the end of August, 1959, and by the end of November almost 10,000 Moroccans were affected. In mid-September, unable to cope with the situation, the Government and Moroccan Red Crescent appealed for assistance to World Health Organization (WHO) and the League of Red Cross Societies. Two WHO experts were dispatched to Morocco to investigate and they traced the cause of the paralysis epidemic to poisoning by tri-ortho-cresylphosphate contained in adulterated cooking oil. Dr. Dennis Leroy, a French professor, sent later as WHO expert on matters of re-education, submitted recommendations concerning establishment of rehabilitation centers, equipment, treatment, personnel and training. Findings revealed that 50 per cent of the victims were children and adolescents and that women were affected in greater number then men. Through its National Societies, the League provided equipment, financial assistance and 55 professional rehabilitation personnel from 15 countries to treat victims and to train Moroccan personnel. Locales were found and one indoor and four outdoor hospital treatment centers were established. Special 10-day courses for Moroccan nurses aides have been started to qualify them to assist physical therapists. A special one-year physical therapy training course is planned for selected Moroccan nurses. Six weeks after organization of the rehabilitation operation, 6,991 patients had been thoroughly evaluated and tested. Preliminary statistics show that of this number six per cent will remain quadriplegics, approximately 15 to 20 per cent have minimal disability and the balance will require long-term treatment. The size and urgency of the problem dictate group therapy treatment rather than individual treatment.

Requests for reprints and/or information should be directed to: Gustave Gingras, M.D., 6265 Hudson Rd., Montreal, Que., Canada.

Development of Objective Predictors of Recovery in Hemiplegic Patients. J. H. Bruell, and J. I. Simon. *(pp. 564-569; 1 figure and 2 tables)*

Read at the 3rd International Congress of Physical Medicine, Session on Medical Problems Diagnosed or Treated by Physical Medicine, Washington, D. C., August 26, 1960.

● Predictions as to whether a patient will recover after a cerebral vascular accident are made frequently on a subjective basis, and the validity of such predictions depends largely on the experience of the clinician who makes the prognosis. Data will be presented which suggest the distinct possibility of developing objective methods of prediction. Two groups of 40 hemiplegic patients form the two samples of this study. It was found that hemiplegic patients who fail to recover from the effects of a cerebral vascular accident (F-patients), (a) tend to be older, (b) tend to have higher systolic blood pressure, and (c) tend to enter physical therapy later after the c.v.a. than patients who recover (R-patients). Failure to recover was indicated if a patient remained wheelchair-bound in spite of physical therapy, while recovery was defined as a progression from a wheelchair-bound status at the beginning of physical therapy to an ambulatory and fully independent status at its conclusion. Measures of the three factors which differentiated between F-patients and R-patients were used as predictors of recovery. A composite score based upon all three factors was found to predict recovery better than scores based upon two or one factor only. Shortcomings of the method used in the development of the predictor scores, and ways to cope with these shortcomings in future studies will be discussed.

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Management of Emotional Barriers to Rehabilitation in Cerebral Palsied Adults. H. A. Storrow, and M. H. Jones. *(pp. 570-574)*

Read at the 3rd International Congress of Physical Medicine, Session on Cerebral Palsy, Washington, D .C., August 25, 1960.

● There is general agreement that a large proportion of cerebral palsied individuals suffer from emotional problems which interfere with rehabilitation efforts. Agreement is lacking, however, concerning the kinds of problems seen and appropriate methods for managing them. This investigation suggests that not one but several personality patterns are represented in this group. **Procedure:** 72 consecutive cerebral palsy patients applying for help to the United Cerebral Palsy Association of Los Angeles County Vocational Training Center were studied psychiatrically; information was recorded in narrative form and on specially prepared rating scales. **Findings:** 82 per cent of the subjects manifested the signs and symptoms of problems sufficiently severe to interfere with rehabilitation efforts, although not all were severe enough to warrant a psychiatric diagnosis. Four different personality patterns could be reliably distinguished: schizoid patterns, denial patterns, passive-dependent patterns, and sublimation patterns. The first three of these were maladaptive. **Conclusions:** most of the problems seen are amenable to management by the rehabilitation team without specialized psychiatric intervention. Appropriate management requires recognition and use of the constructive characteristics of each personality pattern. These characteristics and suggested methods for handling them are discussed.

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Comparison of the Bactericidal Effect of Visible Light with Ultraviolet Light on Staphylococcus Aureus. M. T. Carpendale. *(pp. 575-579; 4 figures and 1 table)*

Read at the 3rd International Congress of Physical Medicine, Session on Physiatric Care Following Trauma, Washington, D. C., August 25, 1960.

● It has been shown that long ultraviolet radiations (3000-3900 A.U.) have a bactericidal action on Mycobacterium tuberculosis (Segal & Bloch, 1955), and Escherichia coli (Luckiesh, 1947). However, this effect was not observed in the case of Staphylococcus aureus (Gates, 1930). The present study, using a high pressure mercury-xenon lamp demonstrates that not only is there a bactericidal action on Staphylococcus aureus with long ultraviolet radiations, but this effect is also observed with visible light, i.e., with a wavelength greater than 3900 A.U. This action seems to be dependent on the presence of oxygen, whereas the bactericidal action, due to wavelengths shorter than 3000 A.U. is independent of the presence of oxygen.

Requests for reprints and/or information should be directed to: Michael T. Carpendale, M.D., Director of Rehabilitation, University of Alberta Hospital, Edmonton, Alta., Canada.

Cervical Radiculitis: Diagnosis and Treatment. D. Rubin. *(pp. 580-586; 3 tables)*

Read at the 3rd International Congress of Physical Medicine, Session on Medical Problems Diagnosed or Treated by Physical Medicine, Washington, D. C., August 26, 1960. By title.

● The definition, diagnosis and method of treating cervical radiculitis are discussed. The objective of the active treatment program is to relieve the pain caused by nerve root compression by relaxing the cervical, scapular and shoulder musculature and by restoring a normal range of motion to the cervical spine. Specific modalities and specialized technics to achieve this objective are reported. Results of a study involving the response to treatment of 84 patients are given.

Requests for reprints and/or information should be directed to: David Rubin, M.D., 6360 Wilshire Blvd., Los Angeles 48, Calif.

The Effect of Weight Bearing Exercise on Radioactive Sodium Clearance from Normal and Osteoarthritis Knee Joints. L. H. Wisham; S. Davison, and L. Gordon. *(pp. 587-590; 2 tables)*

● As part of a continuing study into the circulatory physiology of the knee joint the authors have found that mild exercise and also the administration of intra-arterial Priscoline brings pain relief in the osteoarthritic knee. Their studies have shown that both procedures have the effect of decreasing Na^{24} clearance from the knee joint. The clearance rate indicates the proportional removal per minute. In the present study the normal group average clearance from the knee joint shows a highly significant response to very mild weight bearing muscular effort during exercise. The clearance rate then very rapidly returns to the resting clearance levels when exercise stops. The statistical significance is determined of differences between the average clearances of rest, during, and after exercise for normal subjects and osteoarthritic subjects.

Requests for reprints and/or information should be directed to: Lawrence H. Wisham, M.D., 1 E. 100th St., New York 29, N. Y.

Effects of Combined Denervation and Tenotomy on Skeletal Muscle. K. G. Wakim. *(pp. 591-593; 2 tables)*

Read at the 3rd International Congress of Physical Medicine, Session on Diseases of Skeletal Muscle, Washington, D. C., August 23, 1960.

● In adult albino rats a comparative study was made of the effects of tenotomy, denervation, and the combination of the two on the work output, endurance, and weight of the skeletal muscles attached to the tendo achillis. Denervation was achieved by high excision of the sciatic and femoral nerves at the base of the thigh. Tenotomy was effected by severance of the tendo achillis with overlap and suture of the cut end to prevent reinsertion to the os calcis. Four weeks after tenotomy and denervation the work output and weight were determined and compared with the same factors as derived from normal muscles. The muscle weights and the initial and total work output were reduced most severely by combined denervation and tenotomy. Denervation alone caused more reduction in muscle weight and in work output than did tenotomy alone. The average work output of the gastrocnemius muscle group in gram meters per 100 seconds was 196 for the normal muscles, 108 for those tenotomized, 24 for those denervated and 12 for those both denervated and tenotomized. Evidently the combination of tenotomy and denervation of the same muscle group has a practically additive effect on the muscles, causing a very marked reduction in muscle weight and in work output and endurance.

Requests for reprints and/or information should be directed to: Section of Publications, Mayo Clinic, 200 First St., S.W., Rochester, Minn.